central nervous system function in brain trauma and the degree of abnormality of evoked potential.

In the postconcussion syndrome, evaluation of brain evoked potentials may also establish that though there are no abnormal physical signs, there may in fact be an electrophysiologic disturbance between the diencephalon and the brain stem. This finding implies an organic rather than a psychogenic basis for this syndrome.

The evoked potential technique can distinguish between organic and psychogenic disorders, provide an objective indicator of sensory function when perceptual tests are impractical (such as with comatose persons) and disclose the specific brain activities that handle different types of sensory information. Evoked potentials can provide information on impairment of ipsilateral, contralateral or bilateral transmission of electrical signals and can delineate the most intact sensory systems, thereby aiding in the planning of the most appropriate rehabilitation strategies.

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Bladder-Sphincter Dyssynergia

MICTURITION IN ADULTS is under voluntary control and is well coordinated when contraction of the bladder is associated with relaxation of the periurethral sphincter. Any spinal cord lesion involving the long tracts results in some loss of voluntary control on micturition and bladder-sphincter incoordination or dyssynergia in which voluntary or reflex contraction of bladder does not lead to complete relaxation of periurethral sphincter. Mild dyssynergic response occurs with multiple sclerosis and incomplete spinal cord injuries. Severe detrusor-sphincter dyssynergia occurs in complete upper thoracic and cervical lesions and is associated with a rise in both systolic and diastolic blood pressures. Lesions above the pons, such as stroke or head injury, are usually associated with detrusor hyperreflexia and not dyssynergia.

Detrusor-sphincter dyssynergia with increased sustained intravesical pressure can lead to vesicoureteral reflux and damage to the kidneys. Mild dyssynergia is treated with alpha blockers such as phenoxybenzamine hydrochloride, anticholinergics and intermittent catheterization. Severe dyssynergia is best treated by a transurethral resection (myotomy) of the sphincter. Spinal cord injury patients with detrusor-sphincter dyssynergia and maintained with long-term indwelling catheters or supravesical divisions run the risk of autonomic dysreflexia, repeated infections and stone disease.

Removal of the catheter in such patients following transurethral sphincterotomy reduces the incidence of repeated infections and autonomic dysreflexia and improves the quality of life.

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Current Concepts on Orthotics

THE USE OF ORTHOSES (braces and splints) has greatly expanded in recent years due to better understanding of the principles of use, the fabrication of new and lighter materials and increased acceptance by wearers.

The basic principles of supporting weakness, preventing or correcting deformities and relieving pain have not changed since ancient times, but with newer knowledge these principles are being applied more effectively. For example, the use of a cast brace to maintain knee motion, rather than rigidly immobilizing the knee, will give better functional end results. Also, the ankle-foot orthosis (AFO) to correct drop foot has replaced the short-leg metal brace attached to a shoe. It is a simple plastic posterior shell that fits from the calf along the sole of the foot and into the shoe. New plastics have aided the fabrication of leg braces and back supports, from the simple to the more complicated ones, including the Milwaukee frame for scoliosis.

Spinal orthotics, which formerly relied on a three-point pressure system made of leather and metal, have given way to the thoracolumbar spinal orthosis (TLSO) made of plastic that secures support around the pelvis and extends upward to give support in any posture.